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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,653	06/26/2003	Bo Carlstrom	024445-354	4028

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EXAMINER

GAY, JENNIFER HAWKINS

ART UNIT	PAPER NUMBER
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3672

DATE MAILED: 04/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/603,653

Applicant(s)

CARLSTROM ET AL.

Examiner

Jennifer H Gay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/17/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Drawings

2. The drawings are objected to because of the following informalities:
- In Figure 3A the section lines “B-B” and “C-C” should be changed to either Roman or Arabic numerals. The Brief Description of the Drawings should be amended accordingly.
 - In Figures 3A and 3D the lines indicating the various lengths, planes, and axes are very hard to see and should be changed so that they are more easily visible.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 1, 7, and 12 are objected to because of the following informalities: Claims 1, 7, and 12 recites the limitation "the impact surface" in lines 7, 5, and 10 and 13 respectfully. There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Liljebrand et al. (US 2002/0074797, referred to hereafter as Lil).

Regarding claim 1: Lil discloses a male portion for percussion drilling. The portion includes the following features:

- An end portion on which external thread is provided (Figure 2).
- An end surface that includes an abutment surface 19.
- A first cross-section area 15A along a region of the portion where the thread has a fill profile.
- A length L1 that is defined by a plane of the abutment surface to a point on an imaginary coaxial circular cylinder ceases to touch a crest of the thread (this would correspond to the length of the first thread 15A).
- The ratio of the diameter of the cylinder to the diameter of the cylinder is between 1 and 2 (paragraph [0015]).
- A second cross-sectional area 15B that is situated farther from the impact surface than the length and is larger than the first cross-sectional area.

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Regarding claim 2: The second cross-sectional area lies within a distance of 1-5 mm beyond the length.

Regarding claims 3-5: The range may be between 1.3 and 1.6 with the diameter being less than 37mm.

Regarding claim 6: The male thread is fixedly connected to the end of a drill steel that has a flow channel 20 therethrough.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7-15 are rejected under 35 U.S.C. 102(b) as anticipated by Lil or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lil in view of Larsson (US 6,767,156).

Regarding claim 7: Lil discloses a drill bit (paragraph [0014] recites that the male 15 and female 16 portions of the drill steel can be located on the same drill steel and thus a drill bit would inherently include the cooperating set of threads) for percussive rock drilling. The bit includes the following features:

- An end portion having a central recess having an internal thread provided along the length of the recess (Figure 3).
- An abutment surface 30 located on the inner end of the recess.
- A length defined from the impact surface to a point where an imaginary coaxial circular cylinder ceases to contact a crest of the thread.
- The ratio of the diameter of the cylinder to the length is between 1 and 2 (paragraph [0017]).

Regarding claims 8-10: The range may be between 1.3 and 1.6 with the diameter of the cylinder being less than 36 mm.

Regarding claim 11: The female thread is fixedly connected to the end of a drill steel that has a flow channel **20** therethrough.

Regarding claim 12: Lil discloses a threaded joint between a male portion and a drill bit. The joint includes the following features:

- The male portion includes the following features:
 - An end portion on which external thread is provided (Figure 2).
 - An end surface that includes an abutment surface **19**.
 - A first cross-section area **15A** along a region of the portion where the thread has a full profile.
 - A length **L1** that is defined by a plane of the abutment surface to a point on an imaginary coaxial circular cylinder ceases to touch a crest of the thread (this would correspond to the length of the first thread **15A**).
 - The ratio of the diameter of the cylinder to the diameter of the cylinder is between 1 and 2 (paragraph [0015]).
 - A second cross-sectional area **15B** that is situated farther from the impact surface than the length and is larger than the first cross-sectional area.
- The drill bit or female portion includes the following features:
 - An end portion having a central recess having an internal thread provided along the length of the recess (Figure 3).
 - An abutment surface **30** located on the inner end of the recess.
 - A length defined from the impact surface to a point where an imaginary coaxial circular cylinder ceases to contact a crest of the thread.
 - The ratio of the diameter of the cylinder to the length is between 1 and 2 (paragraph [0017]).

Regarding claims 13-15: The range for both the male and female portions may be between 1.3 and 1.6 with the diameter of each cylinder being less than 37 mm.

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If applicant traverses the above rejection of claims 7 and 12, the following alternate rejection is given.

Lil discloses all of the limitations of the above claims except for the disclosed female threads being located within a drill bit.

Larsson discloses a threaded coupling for percussion drilling that is similar to that of Lil. Larsson further teaches using a threaded coupling that was first taught as being used to connected drill steels to connect a drill steel to a drill bit (Figure 4) with the drill bit including the female threads.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified the threaded coupling of Lil such that the female threads were located within a drill bit as taught by Larsson in order to have eliminated the need for a special drill steel to connect the drill bit the drill string. This would have reduced the cost of the drilling operation by limiting the different equipment required and would have strengthened the drill string.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

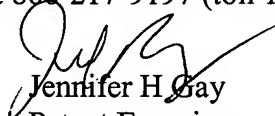
The remaining references made of record disclose various threaded couplings for percussion drilling.

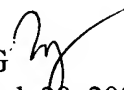
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer H Gay whose telephone number is (703) 308-2881. The examiner can normally be reached on Monday-Thursday, 6:30-4:00 and Friday, 6:30-1:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on (703) 308-2151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jennifer H. Gay
Patent Examiner
Art Unit 3672

JHG 
March 29, 2005